Section 621—Concrete Barrier

621.1 General Description

This work includes constructing Portland Cement concrete barriers according to these Specifications and in conformance with the lines, grades, type and typical sections shown on the Plans, or established by the Engineer.

This Specification may require barriers suitable for medians or side installation on both roadways and bridges.

621.1.01 Definitions

General Provisions 101 through 150.

621.1.02 Related References

A. Standard Specifications

Section 433—Reinforced Concrete Approach Slabs

Section 500—Concrete Structures

Section 833—Joint Fillers and Sealers

Section 853—Reinforcement and Tensioning Steel

B. Referenced Documents

GDT 7

GDT 20

GDT 21

GDT 24a

GDT 24b

GDT 49

GDT 59

GDT 67

621.1.03 Submittals

General Provisions 101 through 150.

621.2 Materials

Use materials that meet the requirements of the following Specifications:

Material	Section
Portland Cement Concrete, Class A or AA	500
Steel Bars for Concrete Reinforcement	853.2.01
Joint Fillers and Sealers	833

Ensure that barrier walls and parapets on bridges are Class “AA” concrete unless otherwise specified on the Plans.

621.2.01 Delivery, Storage, and Handling

General Provisions 101 through 150.

621.3 Construction Requirements

621.3.01 Personnel

General Provisions 101 through 150.

621.3.02 Equipment

General Provisions 101 through 150.

621.3.03 Preparation

A. Subgrade Preparation

Follow these guidelines for preparing the subgrade:

1. Finish the subgrade to the required lines, grade, and cross section shown on the Plans or directed by the Engineer.
2. Compact the subgrade to 100 percent of the maximum laboratory density for the depth shown on the Plans.
3. Determine the maximum laboratory dry density from representative samples of the material being compacted using GDT 7, GDT 24a, GDT 24b, or GDT 67, whichever is applicable.
4. Use GDT 20, GDT 21, or GDT 59 to determine the in-place density of the compacted subgrade.

B. Base Preparation

Follow these requirements for preparing the base:

1. Place the base as shown on the Plans, and compact it to 100 percent of the maximum laboratory dry density.
2. Use GDT 49 to determine the maximum laboratory dry density from representative samples of the material being compacted. Use GDT 21 or GDT 59 to test in-place density of the base.

621.3.04 Fabrication

General Provisions 101 through 150.

621.3.05 Construction

A. Formed or Slip Formed Barrier

Ensure that the barriers are Class A concrete as defined in Section 500, and are constructed according to Plan details.

1. Place the concrete using conventional forms or an approved self-propelled extrusion machine. When using forms, give the barrier a Type III finish, and cured according to Section 500.
2. Construct joints of the type and at the locations specified on the Plans.
    a. When emergencies interrupt placement, the Engineer will decide whether to allow a construction joint and will direct where and how to construct the joint.
    b. Joints may be sawed or formed. If the joint is sawed within 24 hours of placement to at least 3 in (75 mm) deep using a template, immediately remove the following material:
        - Material that may damage the adjacent concrete by blocking the sawed joint
        - Material that may prevent later operation or cleaning after the sawing operation is complete
    c. Saw the joints through the footing.
3. The outside vertical face of the side barrier or parapet may be battered as directed by the Engineer. Radii, as approved by the Engineer, may be used at intersecting surfaces of the barrier.

    Make approved requested changes at no cost to the Department.

B. Slip-Formed Barriers

When placing barriers using slip-form methods, follow these requirements:

1. To place barriers, use extrusion machines designed to place concrete barrier or parapet without using forms.

   Extrusion machines may be either crawler or rubber tired.
2. Conform the barrier or parapet to the established shape, line, grade, and dimensions shown on the Plans.
3. Obtain the proper density and cross section by forcing an approved concrete mix through a mold of the proper cross section.
4. Ensure that the extrusion machine consolidates the freshly placed concrete in one complete pass and that internal vibrators can consolidate the concrete along the faces of the forms and adjacent to joints.

   Perform this work to minimize hand finishing and to produce a dense and homogenous barrier free from voids and honeycomb.

C. Finish

Use a steel trowel to repair or correct the concrete surface. Do not overfinish the surface. Keep hand finishing to a minimum.

Correct the exposed surfaces that are not satisfactory to the Engineer in color, texture, smoothness, or patching.

D. Curing

Cure as specified in Subsection 500.3.05.Z, "Cure Concrete," and as follows if an approved membrane-forming curing compound is used.

1. Use a Type 1, Class B curing compound.
2. Uniformly spray the concrete surface with curing compound immediately after obtaining the surface finish.

   Applying protective surface treatment to the barrier or parapet surfaces is not required.

621.3.06 Quality Acceptance

General Provisions 101 through 150.

621.3.07 Contractor Warranty and Maintenance

General Provisions 101 through 150.

621.4 Measurement

The barrier is measured for payment in linear feet (meters) of each accepted type shown on the Plans. The barrier is measured along the top of the various types.

Side barriers are measured for payment in linear feet (meters) of each accepted type shown on the Plans. The barrier is measured along the top of the various types.

Barriers on bridges are measured separately for payment, as defined in Subsection 500.4.01.C.

Barriers placed on approach slabs are measured for payment as defined in Section 433.

621.4.01 Limits

General Provisions 101 through 150.

621.5 Payment

This work, measured as specified above, will be paid for at the Contract Unit Price per linear foot (meter) for each barrier type. Payment is full compensation for providing materials, forms, and equipment; preparing subgrade and base; and providing labor, incidentals, and direction to complete the work.

Payment will be made under:

Item No. 621	Concrete barrier, ("type")	Per linear foot (meters)

Item No. 621	Concrete side barrier, (“type”)	Per linear foot (meters)

621.5.01 Adjustments

General Provisions 101 through 150.